1. A method of producing an oriented oxide superconducting film, comprising:

(a) providing a metal oxyfluoride film on a substrate, said metal oxyfluoride film comprising the constituent metallic elements of an oxide superconductor in substantially stoichiometric proportions;

(b) initiating convertion of the metal oxyfluoride into the oxide superconductor in a processing gas having a moisture content of less than 1% by mass and a total pressure less than atmospheric pressure for a time sufficient to form a layer of the oxide superconductor at the substrate/film interface; and

(c) completing conversion of the metal oxyfluoride into the oxide superconductor in a processing gas having a moisture content greater than that in step (b) and a total pressure less than atmospheric pressure.

2. The method of claim 1, wherein the moisture content in step (c) is between 4.5 and 35% by mass.

3. The method of claim 1, wherein the P_{H_2O} during step (b) is less than 10 mTorr and the total pressure is about 8 Torr or less.

4. The method of claim 1, wherein the P_{H_2O} during step (c) is between 150 and 350 mTorr and the total pressure is about 8 Torr or less

5. The method of claim 1, wherein the total pressure is less than about 8 Torr.

6. The method of claim 5, wherein the total pressure is less than about 1 Torr.

7. The method of claim 1, wherein the total pressure is less than about 0.1 Torr.

8. The method of claim 1, wherein the processing gas consists substantially of water vapor and oxygen.

9. The method of claim 1, further comprising depositing a buffer layer on the substrate before the step of depositing.

10. The method of claim 9, wherein the buffer layer comprises a member of yttria-stabilized zirconia, $LaAlO_3$, $SrTiO_3$, CeO_2, Y_2O_3, and MgO and any combination of the above.

11. The method of claim 1, wherein the film has a thickness of at least 0.3μm.

12. The method of claim 11, wherein the film has a thickness of at least 0.5μm.

13. The method of claim 12, wherein the film has a thickness of at least 0.8 μm.

14. The method of claim 13, wherein the film has a thickness of at least 1 μm.

15. The method of claim 1, wherein the superconductor comprises YBCO.

16. The method of claim 1, wherein the substrate comprises a ceramic.

17. The method of claim 16, wherein the ceramic is selected from the group consisting of YSZ, $LaAlO_3$, $SrTiO_3$, CeO_2, and MgO.

18. The method of claim 1, wherein the substrate comprises a metal having a texture selected from untextured, uniaxial texturing, and biaxial texturing.

19. The method of claim 18, wherein the metal is selected from steel, nickel, iron, molybdenum, copper, silver, and alloys and mixtures thereof.

20. A c-axis textured superconducting film fabricated by the steps of

(a) providing a metal oxyfluoride film on a substrate, said metal oxyfluoride film comprising the constituent metallic elements of an oxide superconductor in substantially stoichiometric proportions;

(b) initiating conversion of the metal oxyfluoride into the oxide superconductor in a processing gas having a moisture content of less than 5% by mass and a total pressure less than atmospheric pressure for a time sufficient to form a layer of the oxide superconductor at the substrate/film interface; and

(c) completing conversion of the metal oxyfluoride into the oxide superconductor in a processing gas having a moisture content greater than that in step (b) and a total pressure less than atmospheric pressure.

21. The c-axis textured superconducting film of claim 20, wherein the texture is biaxial.

22. The c-axis textured superconducting film of claim 20, wherein the film has a Jc greater than 0.45 MA/cm^2.

23. The c-axis textured superconducting film of claim 22, wherein the film has a Jc greater than 1 MA/cm^2.

24. The c-axis textured superconducting film of claim 23, wherein the film has a Jc greater than 2 MA/cm^2.

25. The c-axis textured superconducting film of claim 24, wherein the film has a Jc greater than 4 MA/cm^2.

26. The c-axis textured superconducting film of claim 20, wherein the moisture content in step (c) is between 4.5 and 34%.

27. The c-axis textured superconducting film of claim 20, wherein the P_{H_2O} during step (b) is less than 10 mTorr and the total pressure is about 8 Torr or less.

28. The c-axis textured superconducting film of claim 20, wherein the P_{H_2O} during step (c) is between 150 and 350 mTorr and the total pressure is about 8 Torr or less.

29. The c-axis textured superconducting film of claim 20, wherein the total pressure is less than about 8 Torr.

30. The c-axis textured superconducting film of claim 20, wherein the processing gas consists substantially of water vapor and oxygen.

31. The c-axis textured superconducting film of claim 20, wherein the substrate comprises a base and a buffer layer interposed between the base and the superconducting film.

32. The c-axis textured superconducting film of claim 31, wherein the buffer layer comprises a member of ceria, yttria-stabilized zirconia, yttrium oxide, and any combination of the above.

33. The c-axis textured superconducting film of claim 20, wherein the film has a thickness of at least 0.5μm.

34. The c-axis textured superconducting film of claim 33, wherein the film has a thickness of at least 1 μm.

35. The c-axis textured superconducting film of claim 20, wherein the superconductor comprises YBCO.

36. The c-axis textured superconducting film of claim 20, wherein the substrate comprises a ceramic.

37. The c-axis textured superconducting film of claim 36, wherein the ceramic is selected from the group consisting of YSZ, $LaAlO_3$, $SrTiO_3$, CeO_2, and MgO.

38. The c-axis textured superconducting film of claim 20, wherein the substrate comprises a metal.

39. The c-axis textured superconducting film of claim 38, wherein the metal is selected from steel, nickel, iron, molybdenum, copper, silver, and alloys and mixtures thereof.

40. A method of producing an oriented oxide superconducting film, comprising:
(a) providing a metal oxyfluoride film on a substrate, said metal oxyfluoride film comprising the constituent metallic elements of an oxide superconductor in substantially stoichiometric proportions;

(b) converting the metal oxyfluoride into the oxide superconductor in a processing gas having a total pressure less than atmospheric pressure.

41. The method of claim 40, wherein the total pressure is less than about 8 Torr.

42. The method of claim 41, wherein the total pressure is less than about 1 Torr.

43. The method of claim 42, wherein the total pressure is less than about 0.1 Torr.

44. The method of claim 43, wherein the total pressure is less than about 0.01 Torr.

45. The method of claim 44, wherein the total pressure is less than about 0.01 Torr.

46. The method of claim 45, wherein the total pressure is less than about 0.001 Torr.

47. The method of claim 40, wherein the processing gas consists substantially of water vapor and oxygen.

48. The method of claim 40, further comprising depositing a buffer layer on the substrate before the step of depositing.

49. The method of claim 48, wherein the buffer layer comprises a member of yttria-stabilized zirconia, $LaAlO_3$, $SrTiO_3$, CeO_2, Y_2O_3, and MgO and any combination of the above.

50. The method of claim 40, wherein the film has a thickness of at least 0.3μm.

51. The method of claim 50, wherein the film has a thickness of at least 0.5μm.

52. The method of claim 51, wherein the film has a thickness of at least 0.8 μm.

53. The method of claim 52, wherein the film has a thickness of at least 1 μm.

54. The method of claim 40, wherein the superconductor comprises YBCO.

55. The method of claim 40, wherein the substrate comprises a ceramic.

56. The method of claim 55, wherein the ceramic is selected from the group consisting of YSZ, $LaAlO_3$, $SrTiO_3$, CeO_2, and MgO.

57. The method of claim 40, wherein the substrate comprises a metal having a texture selected from untextured, uniaxial texturing, and biaxial texturing.

58. The method of claim 57, wherein the metal is selected from steel, nickel, iron, molybdenum, copper, silver, and alloys and mixtures thereof.

59. The method of claim 40, wherein the film has a Jc greater than 0.45 MA/cm^2.

60. The method of claim 59, wherein the film has a Jc greater than 1 MA/cm^2.

61. The method of claim 60, wherein the film has a Jc greater than 2 MA/cm^2.

62. The method of claim 61, wherein the film has a Jc greater than 4 MA/cm^2.